("Tymstra et al."). Claim 6 stands rejected by the Examiner under 35 U.S.C. § 103(a) as obvious over Fickel et al. in view of Soehngen, Tymstra et al. and further in view of U.S. Patent No. 4,302,337 (Larson et al.). The rejections are respectfully traversed.

At the outset, it appears the Examiner has withdrawn the previous rejection of Claims 1-13 under 35 U.S.C. §112, second paragraph, since the Examiner makes no mention of the §112 rejection in the instant Office Action. Confirmation of withdrawal of the §112 rejection on the record is respectfully requested.

In citing Fickel et al., Soehngen, and Tymstra et al. as the basis for the 35 U.S.C. §103(a) rejection of claims 1-5 and 7-13, and combining these three references with Larson et al. as the basis for the 35 U.S.C. §103(a) rejection of Claim 6, the Examiner has clearly failed to satisfy the burden, which rests on the Examiner, of making out a *prima facie* case of obviousness of the claimed subject matter.

The U.S. Patent and Trademark Office guidelines for *prima facie* obviousness are set forth in MPEP 2142 (Legal Concept of *Prima Facie* Obviousness) as follows:

> ...First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

These three criteria are not satisfied by the combination of Fickel et al., Soehngen, and Tymstra et al. with respect to the rejection of Claims 1-5 and 7-13. Nor are these criteria satisfied by the combination of Fickel et al., Soehngen, Tymstra et al. and Larson et al. in the rejection of Claim 6.

1. There is No Motivation to Modify or Combine the References

Applicants claim *inter alia* a method for the extraction of hydrophobic constituents from an aqueous solution by contacting the solution with a porous, dimensionally stable granular or powdery material having particles of a defined size which, in turn, possess pores of a defined size. The pores contain a hydrophobic substance with affinity for the constituents to be extracted.

Nowhere do the references teach or suggest this extraction process. Fickel et al. disclose a method for removing hydrophobic substances from aqueous systems using porous polypropylene. The particles of Fickel et al. remove the hydrophobic substance by *adsorbing* the substance into the particle pores; Fickel et al. does not disclose the *extraction* of hydrophobic constituents (fuel oil) from an aqueous solution since the fuel oil is not solubilized and is merely adsorbed into Fickel et al.'s empty porous polymers. (*See* Fickel et al. at column 4, lines 29-31.)

In contrast to the Fickel process, Applicants' extraction method is not limited to fuel oil and *requires* the presence of a hydrophobic substance in the pores of the porous, dimensionally stable granular or powdery material to accomplish the extraction process. Only by utilizing porous, dimensionally stable granular or powdery material having hydrophobic material-filled pores can the solubilized hydrophobic constituents be extracted from the aqueous solution. In fact, the Examiner admits that Fickel et al. does *not* disclose the presence of a hydrophobic substance in the pores of the Fickel polymer particles. Applicants' method also specifically provides for the regeneration of its porous, dimensionally stable granular or powdery material. Here, once again, the Examiner

admits that Fickel et al. does *not* disclose the step of regenerating the porous, dimensionally stable granular or powdery material.

To remedy the deficiencies of Fickel et al., the Examiner first asserts that Soehngen teaches impregnating a polyolefinic adsorbent with a hydrophobic liquid or solid in order to enhance the hydrophobic contaminant adsorption capability of the adsorbent material, and thus it would have been obvious to one skilled in the art to immobilize the hydrophobic substance of Soehngen into the pores of Fickel et al. According to the Examiner, this "modification is deemed to be especially obvious in view of the disclosure by Fickel et al. . . . that active substances may be incorporated into the disclosed material." (Final Office Action pp. 2-3.) This argument ignores the fact that the active substances of Fickel et al. are not used for the extraction of hydrophobic constituents but instead are used for the long-term release of products, *e.g.*, used in the fields of agriculture and forestry. (*See* Fickel et al. at column 4, lines 49-68.) Moreover, there is no teaching or suggestion in either Fickel et al. or Soehngen to fill Fickel et al.'s polymers with Soehngen's liquid. As noted above, the active substances of Fickel et al. are *released* from its pores; to fill Fickel et al.'s pores with a substance that is intended to remain therein would interfere with the absorption of fuel oil into the empty pores. Therefore, Soehngen does not remedy the deficiencies of Fickel et al.

The Examiner next asserts that Tymstra et al. discloses regenerating an oil adsorbent material with steam, so it would have been obvious to one skilled in the art to regenerate Fickel et al. as modified by Soehngen in order to reuse the modified Fickel et al. material.

Tymstra et al. discloses a method for removing small quantities of water-immiscible organic oily impurities from water (*see* column 1, lines 1-4) using an inert solid coated with a cationic surface bonding agent to attract the oily impurities. Once the solid has absorbed the oil and been removed from the water "[t]he oil may be removed from the spent solid by steam vaporization, burning, solvent washing ... or by the chemical action of an aqueous solution of an alkali metal hydroxide followed by neutralization with an aqueous acid." (Page 3, left column, lines 19-25.) However, Tymstra et al.'s regeneration process removes the cation bonding agent, which must be reapplied to the substrate before the solid may be reused. "As most regeneration treatments also remove the bonding agent from the solid together with the absorbed oil the regenerated solid must usually be recoated. . . ." (*See* Tymstra et al. at page 3, left column, lines 43-47.)

Here, unlike Tymstra et al., Applicants' regeneration step does not result in the separation of the hydrophobic substance from the granular or powdery material: only the hydrophobic constituents to be extracted are removed, so there is no need to reapply or reintroduce the hydrophobic substances into Applicants' granular or powdery material after regeneration. (*See* Specification, Examples II, III, IV, V.) Accordingly, Tymstra et al. does not remedy the deficiencies of Fickel et al.

Most, if not all, inventions arise from a combination of old elements. *In re Rouffet* 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Thus, every element of a claimed invention may often be found in the prior art. *Id.* However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. *Id.* Rather, to establish obviousness based on a combination of the elements

disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *In re Dance*, 48 USPQ2d 1653, 1637 (Fed. Cir. 1998); *In re Gordon,* 221 USPQ 1125, 1127 (Fed. Cir. 1984).

For the references to suggest the claimed invention, one skilled in the art would necessarily have to be motivated to add hydrophobic materials to the pores of Fickel et al's polypropylene in order to extract hydrophobic constituents from aqueous solutions, and then regenerate the material for re-use. There must be adequate support in the prior art to modify Fickel et al. or combine Fickel et al. with Soehngen and Tymstra et al. to arrive at the claimed invention in order to complete the U.S. Patent and Trademark Office's *prima facie* case and shift the burden of going forward to applicants. *In re Grabiak*, 226 USPQ 870 (Fed. Cir. 1985). The Examiner has not carried his burden of particularly showing how the prior art provides this motivation and, as noted above, the references do not provide any suggestion or motivation to modify or combine the teachings of the references.

2. There is No Reasonable Expectation of Success

There is no reasonable expectation of success because Fickel et al., unlike applicants, is not concerned with the extraction of hydrophobic materials from aqueous solutions. Fickel et al. is limited to the adsorption of materials, primarily fuel oil, into the pores of its polypropylene. Neither Soehngen nor Tymstra et al. provide any suggestion to combine their teachings with that of Fickel et al. This is especially so in view of the fact that the skilled person confronted with Tymstra et al., would not be able to make the

connection with Fickel et al. since Fickel et al. is not using the cationic surface active bonding agent which is the essence of Tymstra et al. Similarly, the skilled person would not make a connection between Tymstra et al. and Soehngen because the definition for Soehngen's liquid and Tymstra et al.'s cationic surface active bonding agents are mutually exclusive (note that the waxes and fatty acids of Soehngen are defined in Tymstra et al. to be anionic and hence cannot be classified as cationic surface active bonding agents). Accordingly, one skilled in the art following the teachings of the references would not think there was a reasonable expectation of success in the combination of references.

3. The References Do Not Teach or Suggest All of the Claim Limitations

For a *prima facie* case of obviousness, the Examiner must show how the references teach or suggest all of the limitations of the claims. Applicants' claims call for the *extraction* of hydrophobic materials from aqueous solutions by contacting the solution with a porous, dimensionally stable granular or powdery material; the pores contain a hydrophobic substance with affinity for the constituents to be extracted; and the material may be regenerated for further use. None of the cited references disclose all of these elements nor suggest modifying or combining references to arrive at the claimed invention.

A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and then-accepted wisdom in the field. *See, In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Close adherence

to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher." *Id.* (quoting *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 USPQ 303, 313 (Fed. Cir. 1983)).

The Examiner has engaged in such hindsight reconstruction with respect to Soehngen, noting that "upon modification of Fickel et al. by the teachings of Soehngen, in the manner proposed above, the resultant material will remove hydrocarbon constituents by a combination of adsorption and extraction for the same reason that Applicants' material exhibits such a function." (Final Office Action p. 4). However, one skilled in the art reading Fickel, et al. would divine no suggestion to include hydrophobic substances within its pores to *extract* hydrophobic constituents of the aqueous solution. The Examiner has taken applicants' teachings to declare that the claims are obvious.

The Examiner has also engaged in such hindsight reconstruction with respect to Tymstra et al., noting that "the steam treatment of Tymstra et al. will not remove the hydrophobic substance (e.g. soybean oil and/or castor oil) from the powdery material (i.e. polypropylene) of Fickel et al. for substantially the same reason that Applicant's steam treatment does not produce such a result." (Final Office Action p. 5.) However, one skilled in the art reading Tymstra et al. would not be motivated to regenerate the granular or powdery material so that only the hydrophobic constituents to be extracted are removed. To arrive at this conclusion, the Examiner has again taken applicants' teachings, not those of the prior art, to declare that applicants' claims are obvious.

A rejection cannot be predicated on the mere identification of individual components of claimed limitations. Rather, *particular* findings must be made as to the *reason* the skilled artisan, *with no knowledge of the claimed invention*, would have selected these components for combination in the manner claimed. *In re Kotzab*, 55 USPQ2d 1313 (Fed. Cir. 2000). This the Examiner has not done. It is well settled that claims must be read *as a whole*. The Examiner is examining the claims in a piecemeal fashion, but this is not consistent with the standard expressed in MPEP 2142 and in Federal Circuit precedent. *All* of the limitations of the claims must be taught or suggested. The cited references do not accomplish this.

Thus, Fickel et al., Soehngen and Tymstra et al. taken alone or in any combination fail to make obvious the present claims. In view of the above, withdrawal of the rejection of claims 1-5 and 7-13 under 35 U.S.C. § 103(a) is respectfully requested.

4. Claim 6 is not Obvious

Claim 6 depends from Claim 1 and contains all its limitations. Therefore, for all of the reasons noted above with respect to the rejection of Claims 1-5 and 7-13, it is respectfully submitted that the references fail to make obvious claim 6. In view of the above, withdrawal of the rejection of claim 6 under 35 U.S.C. § 103(a) is respectfully requested.

In conclusion, applicants respectfully submit that the leap from the references to the instantly claimed invention is non-obvious and therefore the claims are believed to be patentable. The references fail to motivate one of ordinary skill in the art to make this leap.

In view of the foregoing, it is respectfully submitted that Claims 1-13 are in condition for immediate allowance.

Respectfully submitted,

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